



NATIONAL GRID SYMMETRY™ MEETS NERC, CIP, TWIC NEEDS

National Grid is an international electricity and gas company with 95% of its activities in regulated businesses. It is the largest utility in the UK and the second largest utility in the US. It delivers gas to 11 million homes and businesses in the UK. In the US, National Grid delivers electricity to approximately 3.3 million customers and distributes natural gas serving 3.5 million customers in Massachusetts, New Hampshire, New York and Rhode Island.

Having numerous and diverse facilities throughout New York, Rhode Island, Massachusetts and New Hampshire to secure, National Grid needed a higher level of security to insure its vast infrastructure of buildings were protected. They needed a way to track access to their sites, process over 156,000 cardholder transactions daily, and monitor who entered and exited their plants, operating yards and substations.

A Symmetry™ Security Management System from AMAG Technology provided National Grid the flexibility to control all these aspects of security right down to the individual user's access rights.

"National Grid uses Symmetry access control to control and protect assets based on who should be in certain locations at what point in time," said Alliance Systems Integrators, Inc., President, Thomas Palermo.

All employees use a smart card to gain access to their designated facilities where they work, and to the areas within the building where they have been authorized. Each department individually controls its list of employees and their access rights. Contractors are also provided badges on an as needed basis.

In addition, Symmetry is used to monitor over 4,000 alarm points to protect the many different types of facilities that comprise National Grid.

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National Grid's many types of facilities include:

- Operational facilities that manage administrative functions.
- A large number of control centers that operate, control and maintain the electric distribution system including the electric transmission system, natural gas distribution system, and natural gas transmission system.
- Many electric generating facilities that include power plants that make electricity.
- Several liquid natural gas (LNG) plants that have the giant tanks on the properties.
- A large number of critical facilities that manage the distribution of electric and gas throughout all the different regions.



New Command Center

National Grid streamlined their security operations when they combined their two command centers into one, and recently built a state of the art Security Operations Center to encompass all security: access control, video, intrusion, perimeter and their NERC CIP sites for their New York City, Long Island, New Hampshire, Massachusetts and upstate New York facilities. The new command center allows the security department to be independent and manage all operations for their 300+ sites throughout the Northeast.

National Grid has a combination of manned and unmanned facilities. Unmanned facilities are visited by personnel daily, weekly or monthly, depending on which type of facility and function it serves. All facilities are monitored at the new command center. If there is a breach in security at an unmanned facility, an alarm will pop up in the Symmetry alarm screen at the command center. The security operator can decide what course of action to take based on the alarm.

“We have a large number of intrusion detection systems and we tie those systems into AMAG’s Symmetry for the purpose of monitoring alarms,” said National Grid, Manager for National Grid Global Security in the Security Technical Support Unit, Wendel Steenbuck. “Symmetry provides centralized alarm handling and reporting making it easy to manage alarms from different sources.”

Cameras positioned at all facilities record activity. If there is an alarm, Symmetry provides an output which becomes an input to Verint’s Nextiva video system. The input will prompt the camera associated with that alarm to automatically move and zoom in or out to where the alarm is occurring. Over 2,500 cameras monitor events. Verint encoders create an IP stream back to the Nextiva system.

“When we have an intrusion alarm, our cameras react and move so security operators can see what caused the alarm,” said Steenbuck. “Symmetry’s trigger commands automatically control the cameras and give them that direction.”

Multiple microwave perimeter detection devices are tied into Symmetry and working properly. Thermal imaging cameras are tied to Symmetry through the video management system and then back to Symmetry via a hard wire connection. “All integrations are working seamlessly with Symmetry,” said Palermo.

TWIC

All National Grid facilities which “conduct commerce on the waterway,” including fuel barges for the power plants must be TWIC compliant. TWIC is the Transportation Workers Identification Credential mandated by the Transportation Security Administration to gain unescorted access to secure areas of Maritime Transportation Security Act (MTSA) regulated facilities. Presently, TWIC compliance is completed manually and locally at each site with human intervention.

Card readers have been placed in TWIC restricted areas, and access to those readers is tightly controlled. Only certain individuals have TWIC cards and are granted access through those readers. Access is denied for everyone else.

A Facility Security Officer (FSO) who, by Federal statute, is directly responsible to the US Coast Guard and the Department of Homeland Security is designated and assigned at each TWIC facility. The FSO identifies the specific, secure restricted areas at their facility. If a person needs access to a restricted area, they first have to apply to get a TWIC card and get authorization from the FSO to gain access. Individuals who do not have a TWIC card must be escorted into the area under the direction of the FSO.

Steenbuck is considering installing biometric readers, however is waiting for direction from the federal government on the regulation. All card readers would be connected to Symmetry. At that point, a person would go through a turnstile or gate with a valid TWIC card that has been validated via biometrics. When the validated card is presented to the TWIC reader, an input is supplied to Symmetry where a positive validation is made through the biometric and image to prove he or she is the person on the card. Access is granted upon receiving positive validation.

NERC

National Grid must also comply with the North American Electric Reliability Corporation (NERC) standard, which ensures the reliability of the bulk power system in North America. NERC develops, releases and maintains the Critical Infrastructure Protection (CIP) Cyber Security Standards which are designed to provide the necessary assurances of protection for the equipment that monitors and controls the generation and distribution of power through the grid in North America.



Symmetry provides National Grid a feature-rich security management system that allows them to meet NERC compliance in securing the physical perimeter of each of their many facilities. Since Symmetry is a cyber asset, it must meet minimum standards for such a system and that includes having unique logon credentials, a recovery plan that follows conventional business continuity and disaster recovery practices, and TWIC compliance as mentioned above.

“Symmetry really fit their needs to meet the NERC/CIP compliance,” said Palermo. “Symmetry provided the lock-down capability they needed for potential cyber terrorism issues. AMAG provided all the support; National Grid didn’t need to do anything at the locations that had card access, and for those that didn’t have card access, Symmetry was added easily and they achieved their compliance quickly.”

Trigger Commands

National Grid installed over 2,000 Symmetry 823 and 843 Smart Card Readers. Both readers are designed for companies that need to adopt federal personal identity verification standards. They meet the requirements of Government Smart Card Interoperability Specification GSC-IS v.2 and the Smart Card Enabled Physical Access Control Systems Technical Implementation Guidance PACS v2.2.

The Symmetry 843 Smart Card reader allows authorized individuals to initiate conditional commands to the Symmetry Security Management System. Used primarily in the NERC facilities, authorized individuals use the keypad and star commands to arm and disarm the intrusion system.

About Alliance Systems Integrators

Alliance Systems Integrators is a full service Integrator offering design, installation and maintenance. Alliance Systems Integrators designs Security Command Centers, Control Centers and Enterprise Access Control and Enterprise Video Surveillance for Critical Infrastructure, and provides its clients with a full range of services from planning and design, engineering, maintenance and installation. They employ a full time NERC data analyst and IT senior systems engineer to offer their customers superior customer service and support.

“Alliance considers itself an extension of National Grid’s global security staff, and works closely with National Grid to ensure they

are in compliance with CFAT regulations, NERC CIP regulations and to protect its critical infrastructure and vulnerabilities,” said Palermo.

National Grid will be upgrading to AMAG’s Symmetry Global Security Management System. Symmetry Global will allow National Grid to have one single cardholder database for their 25,000 cardholders, yet segregate the hardware and servers from the rest of the system to meet NERC CIP and TWIC standards.

With having so many cardholders, alarms and alarm points, National Grid’s Steenbuck chose to install an NEC Fault Tolerant Express Server to use in conjunction with NEC Express Cluster with AMAG’s Symmetry Global. The NEC FT Servers are designed to provide extreme availability by using fully redundant system components and can provide continuous availability even in the event of a system failure. Fault tolerant systems can provide up to 99.999% uptime which equates to just a little more than 5 minutes of downtime per year.

“Symmetry is very robust and flexible compared to other access control systems,” said Steenbuck. “The upgrade to Symmetry Global will help us meet all federal regulations, consolidate all operations into one location and improve our security procedures.”

Specifications:

- Symmetry Global
- 25,000 cardholders
- Approximately 2000 Symmetry 823 and 843 Smart Card Readers
- 2500 cameras
- Over 4000 alarm points

